

## REMARKS

Claims 1-68 are pending in the present application. The Examiner has objected to claims 62-68 and has rejected claims 1-61.

### **I. INFORMALITIES NOTED BY APPLICANTS**

Applicants have identified an informality (i.e., an unintended typographical error) in claim 53. As originally filed, claim 53 recites "and and". Applicants have amended claim 53 by deleting the second occurrence of "and" in "and and". Applicants respectfully request that the amendment be entered.

### **II. ALLOWABLE SUBJECT MATTER IN CLAIMS 62-68**

Applicants would like to gratefully acknowledge the indication by the Examiner that claims 62-68 include patentable subject matter. The Examiner states that claims 62-68 are merely objected to for depending from a rejected base claim. However, in view of the arguments made below, Applicants believe that claims 62-68 are in condition for allowance. It is respectfully requested that the objection be withdrawn with respect to claims 62-68.

### **III. REJECTION UNDER 35 U.S.C. § 103(a) WITH RESPECT TO CLAIMS 1-7, 15-20, 28-34, 47-49, 54-59 AND 61**

Claims 1-7, 15-20, 28-34, 47-49, 54-59 and 61 stand rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 6,343,207 B1 ("Hessel") in view of U.S. Patent No. 4,648,060 ("Allen"). Applicants respectfully traverse the rejection.

#### **A. Claims 1-7**

Neither Hessel nor Allen, individually or combined, teaches or suggests each and every element as set forth in claim 1. For example, claim 1 recites "first and second digitally tunable filters; and control logic to digitally tune the first and second filters as a function of a first parameter of a first signal output from the first filter and a second parameter of a second signal output from the second filter". The Examiner alleges that the first and second digitally tunable filters are compensation finite impulse response (CFIR) filter 172I and CFIR filter 172Q as illustrated in FIG. 8 of Hessel. Furthermore, the Examiner alleges that the control logic is a programmable FIR (PFIR) filter 174I or a PFIR filter 174Q as illustrated in FIG. 8 of Hessel, or a

PFIR filter 180I or a PFIR filter 180Q as illustrated in FIG. 9 of Hessel. However, neither PFIR filter 174, 180 is control logic that digitally tunes the CFIR filters 172 (as alleged by the Examiner). Applicants respectfully draw the attention of the Examiner to col. 21, lines 53-59 of Hessel which explain the function of the CFIR filter 172.

The wide band decimation and compensation filter 289 of FIG. 29, including the CIC filter 170, a scaling multiplier 171 and the CFIR 172, in the configured receiver circuit 150, has multirate filters that are used to reduce the bandwidth of an input signal. After the bandwidth is reduced the sample rate can also be reduced. The combination of filtering and sample rate reduction is called decimation.

Col. 21, lines 53-59 of Hessel. Thus, the CFIR filter 172 merely compensates for the CIC filter 170 during the decimation process. Applicants also respectfully draw the attention of the Examiner to col. 23, lines 1-8 of Hessel which explain the function of the PFIR filter 174, 180.

The PFIR filter 174 in the receive mode and PFIR filter 180 in the transmit mode of FIGS. 38 and 39, respectively, dictate the final output response of the system lowpass filtering. In the receive mode, the PFIR filter 174 receives bit samples from the CFIR filter 172 and outputs bit rounded results to the gain circuit 176. In the transmit mode, the PFIR filter receives inputs from the bus 139 and outputs bit samples to the gain circuit 182.

Col. 23, lines 1-8 of Hessel. Thus, the PFIR filter 174, 180 merely provides filtering in the system low pass filtering and does not provide control logic to tune the CFIR filters 172. In fact, in FIG. 8 of Hessel, the PFIR filter 174 is downstream of the CFIR filter 172 on a one-way receiver signal path. Thus, the PFIR filter 174 would be unable to control the CFIR filter 172. The Examiner cited col. 23, lines 1-25 of Hessel which describes a gain control 170. However, the gain control 170 is merely part of the IF gain amplifier 179 as illustrated in FIG. 8 of Hessel and is not part of the PFIR filter 174. Accordingly, as alleged by the Examiner, Hessel fails to teach or suggest at least control logic to digitally tune the first and second filters.

Applicants respectfully submit that the failings in the teachings of Hessel are not made up by the teachings of Allen. Allen relates to a dual channel frequency synthesizer system. The signal synthesizer system is a precision two channel synthesizer having a variety of capabilities which are made possible by having two independently controlled sources with a common controller residing in one instrument. See, e.g., col. 1, lines 39-43 of Allen. FIGS. 1-4 illustrate system configurations for the four disclosed modes of operation: a two channel mode, a two phase mode, a two tone mode and a pulse mode. Regardless of the mode, the signal synthesizer

includes two sources (i.e., local oscillators 101, 102). On the other hand, as alleged by the Examiner, Hessel teaches away from the signal synthesizer and away from two sources of Allen. Instead of a signal synthesizer, Hessel teaches a signal processor; and, instead of two sources (i.e., local oscillators 101, 102), Hessel teaches two filters 172 (as alleged by the Examiner). M.P.E.P. § 2145(X)(D)(2) clearly states that "[i]t is improper to combine references where the references teach away from their combination." Furthermore, even if Hessel and Allen are properly combinable (which Applicants dispute), the combined references do not teach or suggest tuning the CFIR filters 172 with the PFIR filters 174 (as alleged by the Examiner) as a function of a parameter of a signal output of the CFIR filter 172I and a parameter of a signal output from the CFIR filter 172Q. Accordingly, an obviousness rejection based on Hessel in view of Allen cannot be maintained with respect to claim 1 and its dependent claims (i.e., claims 2-7).

Furthermore, Applicants respectfully submit that, even if proper (which Applicants dispute), the combination of Hessel and Allen does not teach or suggest each and every element as set forth in claims 2-7. For example, claim 3 recites that "the first and second filters each comprises a notch filter". None of the citations in Hessel provided by the Examiner nor the modifications in light of Allen teaches or suggests, as alleged by the Examiner, CFIR filters 172 each comprising a notch filter. In another example, claims 4-7, either directly or through dependence, recite "a first signal strength indicator to determine the first parameter and a second signal strength indicator to determine the second parameter". None of the citations in Hessel provided by the Examiner nor the modifications in light of Allen teaches or suggests a signal strength indicator to determine a parameter of the CFIR filter 172I and a signal strength indicator to determine a parameter of the CFIR filter 174Q.

For at least the above reasons, Applicants respectfully request that the rejection under 35 U.S.C. § 103(a) be withdrawn with respect to independent claim 1 and its dependent claims (i.e., claims 2-7).

**B. Claims 15-20**

Neither Hessel nor Allen, individually or combined, teaches or suggests each and every element as set forth in claim 15. For example, claim 15 recites "first and second digitally tunable filters; and tuning means for digitally tuning the first and second filters as a function of a first parameter of a first signal output from the first filter and a second parameter of a second signal

output from the second filter". Since the Examiner uses many of the same or similar arguments in support of the rejection of claim 15 as were used in support of the rejection of claim 1, Applicants respectfully make the same or similar arguments in traversing the rejection of claim 15 as were made in traversing the rejection of claim 1.

Furthermore, Applicants respectfully submit that, even if proper (which Applicants dispute), the combination of Hessel and Allen does not teach or suggest each and every element as set forth in claims 16-20. Since the Examiner uses many of the same or similar arguments in support of the rejection of claims 16-20 as were used in support of the rejection of claims 2-7, Applicants respectfully make the same or similar arguments in traversing the rejection of claims 16-20 as were made in traversing the rejection of claim 2-7.

For at least the above reasons, Applicants respectfully request that the rejection under 35 U.S.C. § 103(a) be withdrawn with respect to independent claim 15 and its dependent claims (i.e., claims 16-20).

#### C. Claims 28-34

Neither Hessel nor Allen, individually or combined, teaches or suggests each and every element as set forth in claim 28. For example, claim 28 recites "a calibration circuit having first and second digitally tunable filters, and control logic having a tuning output to digitally tune the first and second filters as a function of a first parameter of a first signal output from the first filter and a second parameter of a second signal output from the second filter". Since the Examiner uses many of the same or similar arguments in support of the rejection of claim 28 as were used in support of the rejection of claim 1, Applicants respectfully make the same or similar arguments in traversing the rejection of claim 28 as were made in traversing the rejection of claim 1.

Furthermore, Applicants respectfully submit that, even if proper (which Applicants dispute), the combination of Hessel and Allen does not teach or suggest each and every element as set forth in claims 29-34. Since the Examiner uses many of the same or similar arguments in support of the rejection of claims 29-34 as were used in support of the rejection of claims 2-7, Applicants respectfully make the same or similar arguments in traversing the rejection of claims 29-34 as were made in traversing the rejection of claim 2-7.

For at least the above reasons, Applicants respectfully request that the rejection under 35 U.S.C. § 103(a) be withdrawn with respect to independent claim 28 and its dependent claims (i.e., claims 29-34).

**D. Claims 47-49**

Neither Hessel nor Allen, individually or combined, teaches or suggests each and every element as set forth in claim 47. For example, claim 47 recites "first and second digitally tunable filters each having a tuning input" and "control logic having an input coupled to the output of the comparator, and a first tuning output coupled to the tuning input of the first filter and a second tuning output coupled to the tuning input of the second filter". Since the Examiner uses many of the same or similar arguments in support of the rejection of claim 47 as were used in support of the rejection of claim 1, Applicants respectfully make the same or similar arguments in traversing the rejection of claim 47 as were made in traversing the rejection of claim 1.

Furthermore, Applicants respectfully submit that, even if proper (which Applicants dispute), the combination of Hessel and Allen does not teach or suggest each and every element as set forth in claims 48 and 49. Since the Examiner uses many of the same or similar arguments in support of the rejection of claims 48 and 49 as were used in support of the rejection of claims 2-7, Applicants respectfully make the same or similar arguments in traversing the rejection of claims 48 and 49 as were made in traversing the rejection of claim 2-7.

For at least the above reasons, Applicants respectfully request that the rejection under 35 U.S.C. § 103(a) be withdrawn with respect to independent claim 47 and its dependent claims (i.e., claims 48 and 49).

**E. Claims 54-59 and 61**

Neither Hessel nor Allen, individually or combined, teaches or suggests each and every element as set forth in claim 54. For example, claim 54 recites "providing a reference signal to first and second digitally tunable filters; and digitally tuning the first and second filters as a function of a first parameter of the filtered reference signal output from the first filter and a second parameter of the filtered reference signal output from the second filter". Since the Examiner uses many of the same or similar arguments in support of the rejection of claim 54 as were used in support of the rejection of claim 1, Applicants respectfully make the same or similar arguments in traversing the rejection of claim 54 as were made in traversing the rejection of claim 1.

Furthermore, Applicants respectfully submit that, even if proper (which Applicants dispute), the combination of Hessel and Allen does not teach or suggest each and every element as set forth in claims 55-59 and 61. Since the Examiner uses many of the same or similar arguments in support of the rejection of claims 55-59 and 61 as were used in support of the rejection of claims 2-7, Applicants respectfully make the same or similar arguments in traversing the rejection of claims 55-59 and 61 as were made in traversing the rejection of claim 2-7.

For at least the above reasons, Applicants respectfully request that the rejection under 35 U.S.C. § 103(a) be withdrawn with respect to independent claim 54 and its dependent claims (i.e., claims 55-59 and 61).

**IV. REJECTION UNDER 35 U.S.C. § 103(a) WITH RESPECT TO CLAIMS 8-14, 21-27, 35-46, 50-53 AND 60**

Claims 8-14, 21-27, 35-46, 50-53 and 60 stand rejected under 35 U.S.C. § 103(a) as being obvious over Hessel in view of Allen and further in view of U.S. Patent No. 5,283,484 ("Brehmer"). Applicants respectfully traverse the rejection.

Claims 8-14 depend from claim 1; claims 21-27 depend from claim 15; claims 35-46 depend from claim 28; claims 50-53 depend from claim 47; and claim 60 depends from claim 54. Applicants respectfully submit that the failings in the teachings of Hessel or Allen, individually or combined, as discussed above with respect to independent claims 1, 15, 28, 47 and 54 are not made up by the teachings of Brehmer (i.e., some components of a voltage limiter). For at least the above reasons, the obviousness rejection of claims 8-14, 21-27, 35-46, 50-53 and 60 cannot be maintained.

Furthermore, Applicants respectfully submit that the combination of Hessel, Allen and Brehmer does not teach or suggest each and every element as set forth in claims 8-14, 21-27, 35-46, 50-53 and 60. For example, claims 8-14, 21-27, 35-46, 50-53 and 60 recite, either directly or through dependence, a tunable capacitor. However, none of the references teaches a tunable capacitor.

For at least the above reasons, Applicants respectfully request that the rejection under 35 U.S.C. § 103(a) be withdrawn with respect to claims 8-14, 21-27, 35-46, 50-53 and 60.


**V. CONCLUSION**

In view of at least the foregoing, it is respectfully submitted that the pending claims 1-68 are in condition for allowance. Should anything remain in order to place the present application in condition for allowance, the Examiner is kindly invited to contact the undersigned at the below-listed telephone number.

Please charge any required fees not paid herewith or credit any overpayment to the Deposit Account of McAndrews, Held & Malloy, Ltd., Account No. 13-0017.

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Respectfully submitted,

  
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